




COMMENTARY

Rectal cancer services – is it time for specialization within units?

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Colorectal surgery has emerged as a subspeciality of general surgery. Within colorectal surgery there have been further subspecializations – pelvic floor, intestinal failure, inflammatory bowel disease and advanced pelvic malignancy, to name but a few. The objective of subspecialization is to ensure that patients have access to the widest range of treatment options, enabling shared decision-making and enhancing outcomes.

The management of rectal cancer is becoming ever more complex. Multidisciplinary teams must be conversant with an increasing range of treatment options. Should a patient undergo organ-preserving chemoradiotherapy? Should they have transanal endoscopic operation/transanal endoscopic microsurgery (TEO/TEMS) or be considered for a major resection? If a major resection, then are the best results obtained with open, laparoscopic or robotic surgery? Rectal cancer surgery with performance of a high-quality total mesorectal excision is one of the most technically challenging procedures we do. The evidence is clear that if it can be performed to a high standard then local recurrence rates will be lower, thus surgeons are a prognostic factor [1,2]. We also know

that more and more colorectal surgeons are performing fewer and fewer rectal cancer excisions.

The Association of Coloproctology of Great Britain and Ireland (ACPGBI) and Getting it Right First Time/National Consultant Information Programme (GIRFT/NCIP) support National Institute of Health and Care Excellence (NICE) guidance NG151 regarding annual minimum volumes for major rectal excision at both surgeon and institutional level. NICE recommends a minimum case load of five major rectal excisions per year at surgeon level and 10 at institutional level [3]. It should be noted that these are minimum thresholds, and we would recommend that both Trusts providing rectal cancer surgery and surgeons operating on patients with rectal cancer should aim for higher annual case volumes in order to deliver excellence and innovation and provide a more resilient service.

Subspecialization in colorectal surgery in the United Kingdom has dramatically improved outcomes from bowel cancer over the last few decades [4,5] and survival rates are dramatically better than they were in the 1980s. Despite this, survival rates for colorectal cancer remain poorer in the UK than in other Western countries [4].

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Over a similar timeframe, there has been a significant increase in the numbers of colorectal surgeons in the UK, stimulated by a need to improve on-call frequency and to deal with ever rising numbers of referrals for suspected colorectal cancer. This has led to a reduction in the case volumes of individual surgeons.

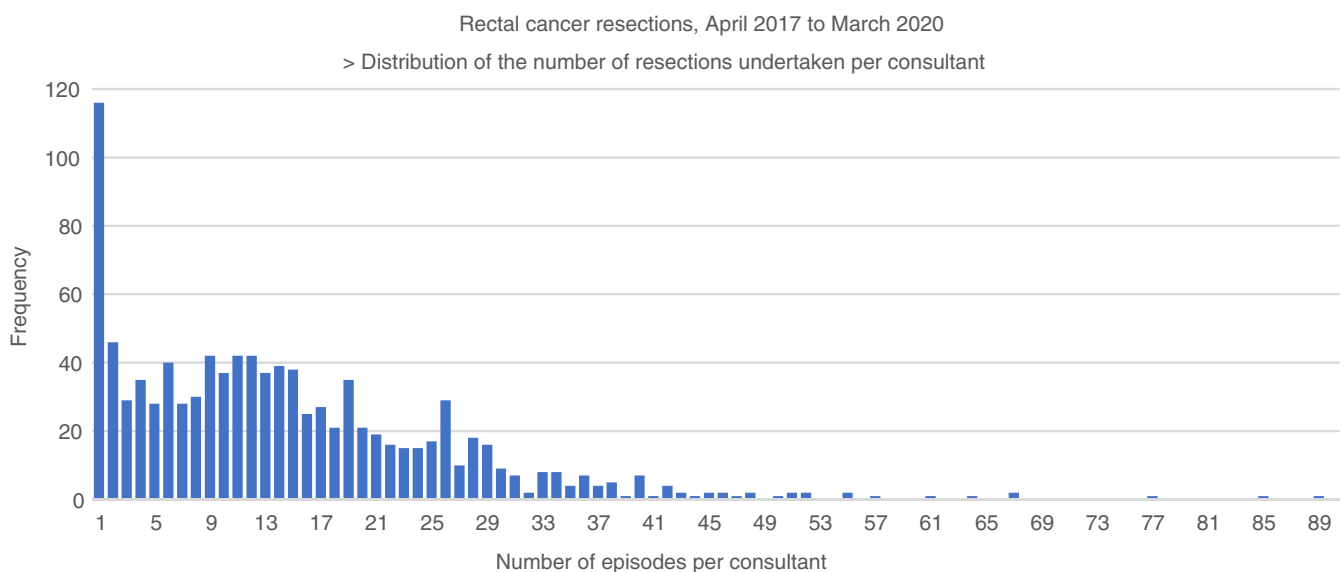
Major surgery for rectal cancer is technically demanding and is a high-stakes business. The surgeon is constrained by the boundaries of the bony pelvis with limited working space and little margin for error. This can have significant ramifications for patients, including local recurrence of cancer, major bleeding, anastomotic leak and genitourinary dysfunction. Data from the National Bowel Cancer Audit (NBOCA) [5], the GIRFT Programme [6] and the Model Health System have shown that there is significant variation in the performance of rectal cancer surgery. Such a high degree of variation between units suggests that some of this variation is unwarranted, i.e. variation that cannot be explained by patient factors such as comorbidity or tumour factors such as site or stage.

Research evidence from across the world, corroborated with national audit data from the NBOCA, has demonstrated an operative case volume effect at both surgeon and hospital level. These data have historically been complicated to aggregate and interpret as there are no universally agreed definitions of high- versus low-volume hospitals or surgeons. Meta-analysis has shown that 30-day mortality and permanent stoma rates are both lower when surgery is performed by high-volume surgeons [7]. A review of the available evidence commissioned by NICE concluded that 'There was some evidence that when the threshold is set between 10 and 20 rectal cancer surgery cases per year, higher volume hospitals have better outcomes than lower volume hospitals in terms of overall survival, local recurrence, permanent stoma rates and perioperative mortality. Similarly, there was some evidence of benefit with a surgeon case volume threshold of between 5 and 10 cases per year in terms of resection margins, local recurrence and permanent stoma rates. Setting these minimum threshold levels could lead to patients living longer and experiencing fewer complications' [8].

Despite this evidence and recent guidance [3], in many units in the UK all colorectal surgeons carry out major rectal cancer resections. In 2019, the median number of rectal resections performed by a colorectal surgeon in England was five, with 44% of surgeons failing to meet the NICE guidelines of more than five rectal resections per year. Seventy four surgeons (9%) were recorded as performing an average of one rectal resection per year, while 765 (89%) performed fewer than 10 rectal resections per year. Institutional volumes were somewhat better, with only three English NHS hospital trusts performing fewer than 10 rectal resections a year. Nineteen trusts (14%) had an average annual volume of fewer than 20 rectal resections [9].

The NCIP, using Hospital Episode Statistics Admitted Patient Care (NHS England) data, looked at rectal cancer resections over a 3-year period (April 2017 to March 2020) and showed that 14490 rectal cancer resections were performed nationally between 1005 consultants. Of these, 394 (39%) consultants did fewer than 10 resections within a 3-year period, with the median number of resections per consultant being 12. The greatest number undertaken by one consultant in a 3-year period was 89. In the same 3-year period, the median number of resections each year was five. The greatest number undertaken by a consultant in a single year was 35 (April 2017 to March 2018). Seventy five per cent of consultants did at most 20 resections each between April 2017 and March 2020, accounting for 46% of all resections. Twenty five per cent of all resections between April 2017 and March 2020 were undertaken by 89 (9%) rectal cancer resection consultants; and 50% of all resections were undertaken by 230 (23%) consultants.

So where does this leave the organization of rectal cancer services in Great Britain and Ireland? For some years now there has been informal talk of regional centres for rectal cancer treatment, and indeed such a model has been established in the Republic of Ireland. Following a national audit of rectal cancer management in 2007, a national centralization programme was initiated. In 2010, a prospective evaluation of rectal cancer treatment showed evidence of improvement in terms of a reduction in positive





circumferential margin rate and clinical anastomotic leak rate [10]. However, imposing a regional model would result in significant numbers of patients having to travel for treatment and could potentially lead to inequality. It is possible that larger high-volume centres in this post-Covid-19 recovery period would be unable to manage such an influx of patients.

It seems likely that TEO/TEMS services will be offered in high-volume centres, and performed by a small number of highly trained individuals. The same applies to advanced and recurrent rectal cancer, where management is highly specialized and requires complex decision-making. This activity should only be performed within a limited number of units nationally, and while it is commissioned centrally by NHS England, centres not commissioned to provide this service should simply not be taking on this surgery, and their Trusts not remunerated for procedures.

There are too many surgeons in England who are individually performing too few rectal cancer resections. It is inconceivable that low-volume surgeons can develop and maintain their operative skills to a high level while offering patients the plethora of treatment options indicated in modern rectal cancer surgery. In other surgical specialities (e.g. urology, maxillofacial surgery and upper gastrointestinal surgery) major oncological resections are concentrated in the hands of a small number of surgeons in order to develop skills and maintain expertise; colorectal surgery has become an outlier in this respect. The oft-cited reason to maintain the status quo is that it is necessary to keep these skills for emergency surgery, yet rectal cancers very rarely present as an emergency and, when they do, a major resection is not required immediately. It makes sense for centres that provide rectal cancer surgery to identify a small number of surgeons who will perform all the rectal cancer resections. The number of nominated rectal cancer surgeons needed at each centre will be determined by the overall caseload of the unit. Many centres have already begun this process of specialization. It is becoming common in many units to provide dual-consultant operating for rectal cancer surgery; this facilitates the transfer and maintenance of technical skills and can also reduce surgeon fatigue during prolonged operations. If this becomes the norm, we will need to record this accurately in both the NBOCA and within coding data from organizations.

Nonetheless, it is the authors' view that sites in England, Northern Ireland, Scotland and Wales that are currently performing fewer than 10 rectal cancer resections per year must make arrangements to transfer these patients to another site for surgery.

The creation of nominated rectal cancer surgeons will provide a platform for the provision of excellent care for our patients across the country, improve the entry of patients to clinical trials and allow units to embrace new technologies such as robotics. We will need to pay attention to the needs and wishes of trainee surgeons, both those who wish to become nominated rectal cancer surgeons and those who do not.

We accept that this idea of specialization will be anathema to a proportion of colorectal surgeons. It is too simplistic to view sub-specialization of rectal cancer as only a numbers game, but it is the

foundation on which introduction of a quality improvement programme in the UK will be based. As representatives of ACPGBI and GIRFT/NCIP, however, we would encourage colorectal surgeons to simply consider the position within their own units and ask themselves this simple question: 'Do we all need to be operating on rectal cancer?'

AUTHOR CONTRIBUTION

All authors contributed to the writing of the article and have proof read same.

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Justin Davies was Topic Advisor for NICE Guideline NG151.

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ETHICAL APPROVAL

None.

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